

shell, a capping compound comprising a compound having the formula $\text{HS}(\text{CH}_2)_n\text{X}$ wherein X is a carboxylate, and at least one additional coating comprising an amino acid which is operably linked to the capping compound; and wherein a coating of the at least one additional coating comprises one or more reactive functionalities, and the nucleobase comprises one or more reactive functionalities, which are used to operably link the functionalized nanocrystal to the nucleobase.

claim 11

24. The functionalized nanocrystal-labeled nucleobase according to claim 23, further comprising a linker which operably links the functionalized nanocrystal to the nucleobase.

claim 12

25. The functionalized nanocrystal-labeled nucleobase according to claim 23, wherein the one more reactive functionalities is selected from the group consisting of an amino group, a thiol group, an amino reactive group, a thiol reactive group, a carboxyl-reactive group, a carboxyl group, and a combination thereof.

claim 13

26. A functionalized nanocrystal-labeled nucleobase comprising a functionalized nanocrystal operably linked to a nucleobase; wherein the functionalized nanocrystal comprises a core and a shell, a capping compound comprising homocysteine, and at least one additional coating selected from the group consisting of a maleimide derivative, and an amino acid; and wherein a coating of the at least one additional coating comprises one or more reactive functionalities, and the nucleobase comprises one or more reactive functionalities, which are used to operably link the functionalized nanocrystal to the nucleobase.

claim 14

27. The functionalized nanocrystal-labeled nucleobase according to claim 26, further comprising a linker which operably links the functionalized nanocrystal to the nucleobase.

claim 15

28. The functionalized nanocrystal-labeled nucleobase according to claim 26, wherein the one more reactive functionalities is selected from the group consisting of an amino group, a thiol group, an amino reactive group, a thiol reactive group, a carboxyl-reactive group, a carboxyl group, and a combination thereof.

claim 16

Please rewrite claim 7 in amended form as follows:

7. (Amended) The functionalized nanocrystal-labeled nucleobase according to claim [6] 23, wherein the amino acid comprises diaminocarboxylic acid.

claim 5 of '602
instead of dependent
on claim 1
should be
dependent on
claim 11

Please rewrite claim 5 in amended form as follows:

5. (Amended) The functionalized nanocrystal-labeled nucleobase according to claim [4] 26, wherein the least one additional coating comprises an amino acid, and wherein the amino acid comprises diaminocarboxylic acid.

claim 4 of '602
instead of dependent
on claim 1
should be
dependent on
claim 14

Please rewrite claim 10 in amended form as follows:

10. (Amended) A kit comprising, in separate packaging: an amount of a functionalized nanocrystal having one or more reactive functionalities; and an amount of a nucleobase having one or more reactive functionalities; wherein the functionalized nanocrystal comprises a core and a shell, a capping compound comprising a compound having the formula $HS(CH_2)_nX$ wherein X is a carboxylate, and a coating comprising diaminocarboxylic acid which is operably linked to the capping compound.

claim 8

Please add new claims 29-34 as follows:

29. A kit comprising, in separate packaging: an amount of a functionalized nanocrystal having one or more reactive functionalities; and an amount of a nucleobase having one or more reactive functionalities; wherein the functionalized nanocrystal comprises a core and a shell, a capping compound comprising a compound having the formula $HS(CH_2)_nX$ wherein X is a carboxylate,

claim 87

and at least one additional coating comprising an amino acid which is operably linked to the capping compound.

30. The kit according to claim 29, wherein the one more reactive functionalities is selected from the group consisting of an amino group, a thiol group, an amino reactive group, a thiol reactive group, a carboxyl-reactive group, a carboxyl group, and a combination thereof.

claim 18

31. The kit according to claim 29, further comprising a linker which can be used to operably link the functionalized nanocrystal to the nucleobase.

claim 19

32. A kit comprising, in separate packaging: an amount of a functionalized nanocrystal having one or more reactive functionalities; and an amount of a nucleobase having one or more reactive functionalities; wherein the functionalized nanocrystal comprises a core and a shell, a capping compound comprising homocysteine, and at least one additional coating selected from the group consisting of a maleimide derivative, and an amino acid.

claim 20

33. The kit according to claim 32, wherein the one more reactive functionalities is selected from the group consisting of an amino group, a thiol group, an amino reactive group, a thiol reactive group, a carboxyl-reactive group, a carboxyl group, and a combination thereof.

claim 21

34. The kit according to claim 32, further comprising a linker which can be used to operably link the functionalized nanocrystal to the nucleobase.

claim 22

Please rewrite claim 8 in amended form as follows:

8. (Amended) A kit for using functionalized nanocrystal-labeled nucleobases in a process selected from the group consisting of